

Reporting Occurrences and Processing Operations Information

HNF-PRO-060

Rev. 2

Effective Date: September 1, 1999

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1.0 PURPOSE

This is the implementing procedure for three reporting processes. Base Program Operational Emergencies (section 3.1) are required by DOE O 151.1, *Comprehensive Emergency Management System*, Chapter V, section 2. The Abnormal Event notification process (section 3.2) is required by HFID 232.1B, *Notification, Reporting, and Processing of Operations Information*. The occurrence reporting process (section 3.3) is required by DOE O 232.1A, *Occurrence Reporting and Processing of Operations Information* and DOE M 232.1-1A, same title.

2.0 REQUIREMENTS

The PHMC major subcontractors (MSCs) are responsible for the Base Program Operational Emergency, Abnormal Event notification and occurrence reporting processes, including occurrence reports generated by alliance companies, subcontractors or vendors during work performed for their facility, project, service, or activity.

Alliance companies are not responsible for generating occurrence reports unless formally tasked that scope of work through the MSC.

3.0 PROCEDURE

MSC facility management shall provide timely notification of events and conditions to the Occurrence Notification Center (ONC). MSC facility management must first determine if an event or condition meets the Emergency Action Levels in DOE-0223, *Emergency Plan Implementing Procedures*. If the event or condition is not a classified emergency, the “Base Program Operational Emergency Criteria” in Appendix A shall be reviewed, and requirements completed, as described in Section 3.1. If the event or condition is not a Base Program Operational Emergency, the “Abnormal Event Category List” in Appendix B shall be reviewed, and requirements completed, as described in Section 3.2. If the event or condition is not a Base Program Operational Emergency or Abnormal Event, the criteria in Appendix C, “Occurrence Reporting Categories and Criteria” shall be reviewed, and requirements completed, as described in Section 3.3.

3.1 Base Program Operational Emergencies

MSC facility management shall report events or conditions that meet the criteria contained in Appendix A, to the ONC. These notifications shall be made as soon as possible (within 30 minutes) following discovery by cognizant facility staff. These notifications are made with an understanding that the information is preliminary and may not include details. Taking mitigative actions to stabilize the facility/operation to a safe condition shall take precedence over notifications.

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MSC facility management, with assistance from the ONC, shall categorize Base Program Operational Emergencies. The ONC shall notify the DOE Headquarters Emergency Operations Center within 30 minutes of categorization. Base Program Operational Emergencies require a written occurrence report, as described in section 3.3.4.

All events categorized as Base Program Operational Emergencies are automatically reported to offsite agencies as Abnormal Events, as described in section 3.2.

3.2 Abnormal Event Notifications

MSC facility management shall report events or conditions that meet the categories listed in Appendix B, to the ONC. The intent of Abnormal Event notifications is to notify offsite agencies of site conditions that could potentially escalate into emergencies, or where local residents or the media would expect offsite organizations to be aware of the event. These notifications shall be made as soon as possible (within 30 minutes) following discovery by cognizant facility staff. The notifications are made with an understanding that the information is preliminary and may not include details.

Events reported to the ONC are to be immediately evaluated by ONC personnel. Upon categorization of an Abnormal Event using specific criteria negotiated with offsite agencies and contained in ONC procedures, ONC personnel will notify offsite agencies of the event or condition. These notifications shall be made as soon as possible (within 30 minutes) following notification by MSC facility management. Taking mitigative actions to stabilize the facility/operation to a safe condition shall take precedence over notifications.

NOTE: The ONC will provide facility management with the latest revision of the specific Abnormal Event criteria upon request.

3.2.1 Reporting Abnormal Events

1. Upon discovery of an event or condition which meets the categories listed in Appendix B, facility management or environmental compliance personnel will verbally notify the ONC at **376-2900**. Facility management will then notify the cognizant on-call RL/ORP Facility Representative. NOTE: RL is the Richland Operations Office, ORP is the Office of River Protection.
2. The Patrol Operations Center (POC) shall notify the ONC of all 911 calls. These notifications shall be made as soon as possible (within 30 minutes). The ONC will evaluate each call to determine event significance according to the specific Abnormal Event criteria in ONC procedures.
3. Prior to any press release, contractor management will notify the ONC at **376-2900**.

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4. Upon categorization of an Abnormal Event, ONC personnel will formulate the notification message. The notification message will include the facility or area involved, the specific criteria being used, and the event information available at the time.
5. The ONC will notify the Emergency Duty Officer (EDO) that an Abnormal Event notification to the offsite agencies has been prepared. The EDO will immediately notify the appropriate contractor and RL/ORP management.
6. The ONC will initiate the Abnormal Event notifications (verbal and faxed) to the RL Office of External Affairs Duty Officer and the following offsite organizations and agencies:
 - DOE Headquarters Emergency Operations Center
 - DOE Headquarters Site Representative
 - Benton/Franklin County Dispatch Center
 - Grant County Emergency Operations Center
 - Washington State Emergency Operations Center
 - Washington Department of Health
 - Washington Department of Ecology
 - Oregon Office of Energy
 - Indian Tribes
 - Environmental Protection Agency
 - Defense Nuclear Facilities Safety Board Representative
7. Facility management will provide follow-up information on the event to the ONC and the on-call RL/ORP Facility Representative. The ONC will provide the additional information to the offsite agencies.
8. The date and time of each Abnormal Event notification will be documented by the ONC and faxed to the DOE-RL Quality, Safety, and Health Programs Division (QSH) office. A copy will also be faxed to the responsible contractor upon request.
9. If an Abnormal Event is subsequently upgraded to an emergency, the emergency notifications will replace any need for further Abnormal Event notifications.
10. If an offsite agency listed in item #6 above contacts the ONC with questions regarding a possible incident at Hanford, the ONC will contact facility management or appropriate contractor management for additional information, and depending on the information received, may prepare an Abnormal Event notification. At a minimum, the ONC will provide the offsite agency with a response to the question.

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3.3 Reportable Occurrences

3.3.1 Reportable occurrence discovery and categorization

- | | |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| All Employees | <p>1. <u>IF</u> you observe any events or conditions that could have an adverse effect on safety, health, quality assurance, safeguards and security, operations, or the environment,</p> <p><u>THEN</u> immediately notify your manager.</p> <p>NOTE: Call 911 <u>immediately</u> for an actual or potential emergency event or condition.</p> |
| On-Scene Manager | <p>2. Initiate or complete the immediate actions necessary to stabilize the facility/operation to a safe condition and preserve conditions for subsequent investigation. Gather all pertinent information relating to the event/condition.</p> <p>3. <u>IF</u> other Hanford Site contractor personnel or facilities are involved in the occurrence,</p> <p><u>THEN</u> call the ONC (376-2900) and request assistance in notifying that contractor.</p> |
| ONC | <p>4. <u>IF</u> the event or condition involves other Hanford Site contractor personnel or facilities,</p> <p><u>THEN</u> notify the appropriate contractor point-of-contact.</p> |
| On-Scene Manager | <p>5. Notify the building emergency director/building warden and facility manager.</p> |
| Facility Manager
(all facilities) | <p>6. In the event of a spill, release, fire, explosion or permit exceedance, contact the FDH Environmental Single Point-of-Contact on 373-4942 or, if no contact, use the 24-hour pager 546-6365. Refer to HNF-PRO-453, <i>Environmental Notification and Reporting</i>, for reporting criteria.</p> |

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7. IF the event or condition involves groundwater contamination, THEN review the following guidance, to assist operating facilities in determining responsibility for a written occurrence report, after criteria in Appendix C have been exceeded:

- Facility operations have directly contributed to an increase in groundwater contamination through remobilization of contaminants in the unsaturated zone.
- Facility operations have directly contributed to an increase in groundwater contamination through operations that have not followed appropriate standard practices.

8. As soon as possible (and always within two hours of discovering the event or condition), categorize the occurrence. Use your facility-specific criteria or Appendix C of this procedure, "Occurrence Reporting Categories and Criteria."

IF the occurrence category is not clear, or the occurrence exceeds the threshold of more than one criteria,

THEN categorize the occurrence at the higher level being considered.

On-Scene
Manager

9. Initiate investigation of the event. Safeguard relevant information. Refer to HNF-PRO-058, *Critique Process*, for further information.
10. IF the occurrence involved property damage, personnel injury, or motor vehicle damage,

THEN GO TO HNF-PRO-77, *Reporting, Investigating, Managing Events*, for additional reporting requirements.

Facility
Manager
(nuclear
facilities)

11. Review the occurrence to determine if a USQ or Price-Anderson Amendments Act (PAAA) screening is required and, if so, initiate the required review. See HNF-PRO-62, *Identifying and Resolving Unreviewed Safety Questions* and HNF-PRO-2243, *Nuclear Safety Requirement Noncompliances*.

3.3.2 Making initial oral occurrence notifications for reportable occurrences

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IF the occurrence involves classified or unclassified controlled nuclear information (UCNI),

THEN make oral notifications over secure lines. Do *not* transmit classified information or UCNI without proper review (orally or in writing). Refer to HNF-PRO-404, *Obtaining Classification or Declassification Reviews*, for more information.

Facility
Manager
(all facilities)

1. IF the occurrence is an *emergency*,
THEN GO TO DOE-0223, *Emergency Plan Implementing Procedures*, for information and the emergency action levels (EALs) used for classifying an emergency.
2. IF the occurrence is an *unusual occurrence*,
THEN complete the following actions:
 - a. Call the affected RL/ORP Facility Representative (within 90 minutes of categorization) and provide details of the occurrence, categorization, and immediate actions taken.
 - b. Call the ONC (**376-2900**) within 90 minutes of categorization, and provide details of the occurrence, categorization, and immediate actions taken. Advise the ONC of which option listed below will be used to complete notification to the Department of Energy Headquarters Emergency Operations Center (HQ-EOC). Choose one of the two following options:
 - Within 90 minutes of occurrence categorization...

Send a draft Notification Report (Site Form #A-6000-576, *Occurrence Report*, for balance-of-plant) containing as much information as possible from fields 1 through 19 and field 25 to the ONC. The draft report must contain the date/time and name of the RL/ORP Facility Representative notified. Send the draft report via electronic mail or fax (**376-3781**).

- Within two hours of occurrence categorization...

Place a phone call through the ONC to the HQ-EOC. The facility manager or designee must provide as much information as possible from fields 1 through 19 and field 25 of the Notification Report form (Site Form #A-6000-576 for balance-of-plant).

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- ONC
3. Assist the facility manager or designee in completing the HQ-EOC notification options.
- Fax the draft Notification Report sent from the reporting facility to the HQ-EOC and call the HQ-EOC to verify receipt. This is the official notification time.
 - When advised by the facility manager or designee to do so, set up a phone call with the HQ-EOC and the facility manager or designee. The RL/ORP Facility Representative can participate by request.
- Facility Manager
(all facilities)
4. IF the occurrence is an *off-normal occurrence*,
THEN as soon as possible (always within 2 hours of categorization), call the ONC (**376-2900**) and provide details of the occurrence, initial categorization, and immediate actions taken,
AND notify the RL/ORP Facility Representative prior to submitting the Notification Report.
5. IF appropriate,
THEN notify responsible oversight organizations and facility operating organization management.

3.3.3 Making status change notifications for reportable occurrences

- Facility Manager
(all facilities)
1. IF *any* of the following occur,
- Further degradation in the level of safety or impact on the environment, safeguards and security, health, or operations of the facility,
 - A change in category is declared (including if conditions require an emergency class be declared if it was not already),
- THEN immediately make follow-up oral notification to the ONC.

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- ONC 2. IF you receive follow-up oral notifications,
- THEN assist the facility manager in making notifications to the RL/ORP Facility Representative and the DOE-HQ EOC, as needed.

3.3.4 Preparing and filing the Notification Report (reportable occurrences)

Detailed instructions for completing the occurrence report form are available on Hanford Information. See the *Report Writer's Guide* under "Occurrence Reporting Information."

- Facility Manager
(all facilities) 1. Complete the Notification Report (fields 1 through 19 and field 25 of the occurrence report are required; all other fields for which information is known must also be completed).

NOTE: Field #5 (Division or Project) must include the FDH or subcontractor acronym, followed by the contractor division or project. One of the following acronyms must be used:

Major Subcontractors:

- BWHC (B&W Hanford Co.)
- DYN (DynCorp Tri-Cities Services, Inc.)
- FDH (Fluor Daniel Hanford, Inc.)
- LMHC (Lockheed Martin Hanford Corp.)
- PTH (Protection Technology Hanford)
- NHC (Numatec Hanford Corp.)
- WMH (Waste Management Federal Services of Hanford)

Alliance Companies:

- FDNW (Fluor Daniel Northwest)
- LMSI (Lockheed Martin Services, Inc.)
- WM-NW (Waste Management Federal Services Northwest)
- COGEMA Engineering Corporation

Major facilities: Use Occurrence Reporting and Processing System (ORPS) system and instructions.

Balance-of-plant facilities: Use Site Form #A-6000-576 and instructions.

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Facility
Manager
(all facilities)

2. IF the report contains or may contain classified information or UCNI,

THEN do *not* enter it into the ORPS database.

NOTE: An unclassified, nonsensitive version of the occurrence report must be submitted within the required time frame for a Notification Report. See HFID 471.2B, *Information Security*, HNF-PRO-405, *Protecting and Controlling Classified Matter*, and DOE O 471.1, *Identification and Protection of Unclassified Controlled Nuclear Information* for additional requirements.

3. IF the report contains individual radiation dose information,

THEN provide that dose information to the affected individuals before sending the report to ORPS. Contact FDH Radiation Protection (dosimetry) to verify dose information.

4. As soon as possible, transmit the Notification Report into the ORPS.

NOTE: The Notification Report must be transmitted into ORPS before 2400 hours (midnight) the next business weekday, (not to exceed 80 hours) after the occurrence is categorized.

5. IF you need to request a change to an occurrence report from the ORPS administrators,

OR any changes are made to the occurrence report (i.e., categorization, criteria, dates/times) prior to transmittal onto ORPS,

THEN inform the ONC about the requested changes by electronic mail.

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Facility
Manager
(balance-of-
plant)

6. As soon as possible, but always before 1400 hours (2:00 p.m.) on the next business weekday, send the Notification Report to the ONC by fax *and* electronic mail.

IF you are unsure when the report is due (especially if the occurrence is categorized at the end of the week or before a holiday period),

THEN consult the ONC.

ONC

7. Before 2400 hours (midnight) the next business weekday (not to exceed 80 hours) after the occurrence is categorized, enter balance-of-plant Notification Reports into ORPS.

- Before transmitting, review balance-of-plant occurrence reports for classified information or UCNI. Contact an ADC for further review, as needed.
- Before transmitting, complete a quality review of balance-of-plant occurrence reports.

NOTE: Occurrence reports failing the quality review will be returned to the balance-of-plant facility for completion/correction prior to transmittal onto ORPS.

3.3.5 Preparing Update Reports and the Final Report (reportable occurrences)

For all facilities, the Facility Manager shall:

1. Process the condition as required by HNF-PRO-52, *Corrective Action Management*.
2. IF there is any significant or new information about the initial occurrence, including the status of the investigation, or there are recurring consequences (i.e., identification of additional component defects),

THEN prepare and submit an Update Report instead of generating a new report.

NOTE 1: Balance-of-plant facilities submit the report to the ONC for input into the ORPS.

NOTE 2: The Update Report is used for reporting significant or new information regarding the *initial* reportable event; for rolling up other *similar* events into a report, the requirements of sections 3.3.6, 3.3.7, and 3.3.8 of this procedure must be met.

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3. IF the occurrence should be recategorized,

THEN prepare and submit an Update Report.

- Major facilities submit the report to ORPS before 2400 hours (midnight) on the next business weekday (within 80 hours) of recategorizing the occurrence.
- Balance-of-plant facilities submit the report to the ONC before 1400 hours (2:00 p.m.) of the next business day.

NOTE: A justification for the recategorization, including an updated date/time of categorization and categorization/criteria changes must be included in the "Evaluation by Facility Manager" field of the Update Report.

- Notify the RL/ORP Facility Representative before submitting the Update Report.

4. WHEN the significance, nature, and extent of the event or condition have been analyzed,

AND the causes of the event or condition, including the root cause, have been assigned,

AND corrective actions taken to prevent recurrence have been scheduled,

AND lessons learned have been identified,

THEN, within 45 calendar days from initial categorization, prepare, approve, and submit a Final Report.

5. IF you cannot submit a Final Report within 45 calendar days,

THEN, within 45 calendar days, submit an Update Report. Explain in detail the delay, and estimate the date you will submit the final report in the "Evaluation by Facility Manager" field of the report.

NOTE: Facility management should consult with the appropriate RL/ORP Facility Representative prior to extending a Final Report beyond 45 calendar days.

6. IF the RL/ORP Facility Representative or the DOE Program Manager rejects the Final Report,

AND the reason for rejection is not obvious,

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THEN contact the RL/ORP Facility Representative to find out why the report was rejected.

7. Prepare and submit a revised Final Report within 21 calendar days.

IF you cannot submit a revised Final Report within 21 days after the initial one is rejected,

THEN, within 21 calendar days, prepare and submit an Update Report to explain the delay and provide an estimated completion date for the resubmitted report in the "Evaluation by Facility Manager" field.

8. IF the Final Report is issued with open corrective actions,

THEN update the corrective action status in ORPS (i.e., when corrective actions are completed or require extension of a target date).

NOTE: The intent of this requirement is that open corrective actions are updated *as soon as possible*. Corrective actions should be completed by the original target completion date whenever possible.

- Major facilities: Enter updates to ORPS directly.
- Balance-of-plant facilities: Send corrective action status updates to the ONC for entry in ORPS.

3.3.6 Roll-Up Reports for Non-Finalized Occurrence Reports

NOTE: Roll-Up Reports are allowed for off-normal occurrences only.

For all facilities, the facility manager must ensure the following conditions are met before submitting a non-finalized Roll-Up Report:

1. A Notification or Update Report has been submitted, but not finalized.
2. The preliminary investigation identifies the new occurrence to be similar and to have the same root cause code.
3. The preliminary investigation identifies the new occurrence to have the same or similar direct and contributing causes as the initial occurrence.
4. The preliminary corrective action(s) for the initial occurrence are expected to correct the same root cause type of failure.

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5. Appropriate corrective action(s) have been added to address direct and/or contributing causes identified for each new occurrence added to the report.
6. DOE line management (i.e., the RL/ORP Facility Representative and Program Manager) and the DOE-HQ Office of Transportation, Emergency Management and Analytical Services (EM-76), for transportation reports, agree to include the occurrence in a Roll-Up Report.
7. The RL/ORP Facility Representative agrees to the addition of each subsequent occurrence to the Roll-Up Report.

NOTE: The "Evaluation by Facility Manager" field must include the name of the RL/ORP Facility Representative who approves each Roll-Up Report.

8. Notification of each new occurrence shall be made through the issuance of an Update Report within the time period required for a Notification Report (i.e., by 2400 hours [midnight] the next business weekday, not to exceed 80 hours from categorization), changing field #4, "Number of Occurrences," appropriately.

3.3.7 Roll-Up Reports for Finalized Occurrence Reports

NOTE: Roll-Up Reports are allowed for off-normal occurrences only.

For all facilities, the facility manager must ensure the following conditions are met before submitting a finalized Roll-Up Report:

1. A Final Report, including corrective action(s) and associated schedules for implementation, has been approved by the RL/ORP Facility Representative and Program Manager
2. Similar occurrences with the same root cause and corrective actions occur in the time between the approval of the original occurrence report and completion of the original corrective action(s).
3. DOE line management (i.e., the RL/ORP Facility Representative and Program Manager), and EM-76, for transportation reports, agree to include the occurrence in a Roll-Up Report.
4. Notification of the new occurrence is completed through the issuance of a Notification Report that references the approved Final Report.
5. The RL/ORP Facility Representative agrees to the addition of each subsequent occurrence to the Roll-Up Report. (The "Evaluation by Facility Manager" field must include the name of the RL/ORP Facility Representative who approves each Roll-Up Report.)

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6. Notification of each new occurrence is completed through the issuance of an Update Report in accordance with the time period required for a Notification Report (i.e., by 2400 hours [midnight] the next business weekday, not to exceed 80 hours from categorization), changing field #4, "Number of Occurrences," appropriately.
7. Once the original Final Report corrective action(s) are completed, the Roll-Up Report must be submitted as a Final Report. The original Final Report cannot be used as the basis for another Roll-Up Report. Any subsequent occurrences must be reported as a new occurrence report.

3.3.8 Roll-Up Report Instructions

1. A Roll-Up Report may remain open for a period not to exceed 90 calendar days from categorization of the *initial* occurrence.
2. The number of occurrences reported in a Roll-Up Report can not exceed 30.
3. Once the 90-day or 30-report limit is reached (if not done sooner), a Final Report must be submitted.
4. Any occurrences in a Roll-Up Report that have causes and/or corrective actions that are different from the preliminary investigation (and don't meet the requirements of Paragraphs 3.3.6 or 3.3.7 of this procedure), must be deleted by issuance of an Update Report and a new Notification Report submitted.
5. The "Number of Occurrences" field must be updated as each new occurrence is added and must reflect the total number of occurrences reported.
6. The "Description of Occurrence" and "Immediate Actions Taken and Results" fields must clearly identify and discuss each new occurrence. The "Description of Occurrence" field must include information for the following fields:
 - System, Building, or Equipment (field #7)
 - Date and Time Occurrence Was Discovered (field #10)
 - Date and Time Occurrence Was Categorized (field #11)
 - Other Notifications (field #13)
 - Operating Conditions of Facility at Time of Occurrence (field #17)
 - Activity Category (field #18).
7. For non-finalized AND finalized Roll-Up Reports, the "Subject or Title of Occurrence" field must contain the word "Roll-Up" enclosed in parentheses at the end of the subject/title.

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8. *Finalized* Roll-Up Reports must contain the report number of the original approved Final Report that the Roll-Up Report is based on in the "Original Occurrence Report" field.

3.3.9 Canceling Occurrence Reports

If a Final Report has not been filed and it becomes clear that the event was not a reportable occurrence, an open occurrence report may be canceled in the following manner:

- | | | |
|--------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Facility Manager
(all facilities) | 1. | Submit a Final Report. Include an explanation of why the previous categorization criteria does not apply to the event in the "Description of Occurrence" field of the report. Do not change the original occurrence description. <ul style="list-style-type: none">• Major facilities: Submit the report on ORPS.• Balance-of-plant facilities: Send the completed report to the ONC by electronic mail. |
| ONC | 2. | Transmit the canceled Final Report for balance-of-plant facilities to ORPS for DOE approval. |

3.3.10 Other Reports, Distributions, and Reviews

- | | | |
|--------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Facility Manager
(all facilities) | 1. | After approval of the Final Report, mark the occurrence report number on all documents directly referenced in the occurrence report (such as technical data, related correspondence, statements of witnesses and employees, other data) and send them to Central Files for archiving. <p>Collect and disseminate to facility personnel the lessons learned from the facility's respective occurrences and the operations information obtained from other similar DOE facilities. Use this information for trending and analysis to identify and correct deteriorating conditions.</p> |
| Safety Review Committee | 2. | <u>IF</u> the occurrence is in a program supporting the Nuclear Regulatory Commission (NRC), <p><u>THEN</u> review the occurrence to determine if it must be reported as a defect or non-compliance. See HNF-PRO-61, <i>Reporting Safety Concerns for NRC Programs/Facilities</i>.</p> |

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- ONC 3. Distribute copies of all unclassified, nonsensitive Final Reports (with the exception of final canceled reports) to the local public reading room and the DOE-HQ reading room within two weeks.

3.3.11 Facility-Specific Procedures

All FDH and MSC facilities designated as major facilities for occurrence reporting must develop and maintain facility-specific procedures. The procedures must include the following:

1. Responsibilities of the facility line management and staff.
2. Categorization, notification, reporting, and investigation requirements.
3. A listing (by reference) of the Safety Class Structures, Systems, and Components (SSC) for nuclear facilities, and Safety Significant SSC for both nuclear and non-nuclear facilities.
4. Any other facility-specific reporting requirements based on Appendix C of this procedure.

NOTE: HNF-PRO-060 is the only procedure that will require approval by DOE-HQ for the PHMC and its MSCs. FDH will review and approve all other facility-specific procedures. All PHMC occurrence reporting procedures must be in compliance with HNF-PRO-060.

3.3.12 Training

1. FDH administers training programs for occurrence reporting and related subject areas, including:
 - Indoctrination in the objectives and process of occurrence reporting.
 - Identification of reportable occurrences; their categorization, notification, and associated reporting requirements; analysis, determination of causal factors and generic implications; and implementation, tracking and closeout of corrective actions.
2. The following occurrence reporting training courses are offered, depending on individual need:
 - For staff personnel and managers with responsibility for event notification and categorization, "Introduction to Occurrence Reporting" is required.

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- For staff personnel and managers with responsibility for event notification, categorization and generating occurrence reports, "Introduction to Occurrence Reporting" AND "Occurrence Report Writing" are required. Contact the ONC (376-4664 or 376-0059 for course availability.
3. Facility management shall ensure that, based on a graded approach, staff personnel are adequately trained in event critiques, investigations, and root cause analyses.

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4.0 FORMS

Occurrence Report, #A-6000-576

5.0 RECORD IDENTIFICATION

Table 5.1. Records Capture Table

Type of Document	Submittal Responsibility	Retention Responsibility
Occurrence report files (including a copy of the report, related correspondence, technical data, statements of witnesses and employees, other relevant information and data).	Occurrence Notification Center (occurrence reports only) Facility Manager (All other relevant data in occurrence report file)	LMSI/DRM/Records Holding LMSI/Central Files

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6.0 REFERENCES

6.1 Source Requirements

DOE Order 151.1, *Comprehensive Emergency Management System*
DOE Order 232.1A, *Occurrence Reporting and Processing of Operations Information*
DOE Manual 232.1-1A, *Occurrence Reporting and Processing of Operations Information*
HFID 232.1B, *Notification, Reporting, and Processing of Operations Information*

6.2 Working References

10 CFR 835, *Occupational Radiation Protection*
DOE-0223, *Emergency Plan Implementing Procedures*
DOE O 225.1, *Accident Investigations*
DOE N 441.1, *Radiological Protection for DOE Activities*
DOE O 471.1, *Identification and Protection of Unclassified Controlled Nuclear Information*
HFID 471.2B, *Information Security*
HSRCM-1, *Hanford Site Radiological Control Manual*
HNF-PRO-52, *Corrective Action Management*
HNF-PRO-58, *Critique Process*
HNF-PRO-61, *Reporting Safety Concerns for NRC Programs/Facilities*
HNF-PRO-62, *Identifying and Resolving Unreviewed Safety Questions*
HNF-PRO-77, *Reporting, Investigating, Managing Events*
HNF-PRO-404, *Obtaining Classification or Declassification Reviews*
HNF-PRO-405, *Protecting and Controlling Classified Matter*
HNF-PRO-450, *Environmental Compliance*
HNF-PRO-453, *Environmental Notification and Reporting*
HNF-PRO-2243, *Nuclear Safety Requirement Noncompliances*
Report Writer's Guide (available on Hanford Information)

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7.0 RESPONSIBILITIES

NOTE: SME is subject matter expert.

Name	Company	Organization	Phone Number
FUNCTIONAL AREA MANAGER			
DeBusk, Richard E.	FDH	Emergency Preparedness	372-1155
TECHNICAL AUTHORITY			
Trump, Gary D.	FDH	Emergency Preparedness	376-4664
TECHNICAL OWNERS			
Connell, Daniel J.	FDH	Emergency Preparedness	376-0058
POINTS OF CONTACT			
Activity/Name	Company	Organization	Phone Number
Butts, Benjie M.	BWHC	Technical Integration	373-4459
Leonard, W. J. IV (SME)	BWHC	PFP Operations Assurance	373-1820
Jacobsen, Paul H.	WMH	Conduct of Operations	376-7008
Stitt, Susan M. (SME)	WMH	Corrective Action	373-3698
Blehm, Lorie L.	FDH	Procedures	373-9883
Vitulli, Mitchell J. (SME)	FDH	Operations Support	373-1555
Penick, Lee R.	DYN	Conduct of Operations	372-8376
Comer, John W.	LMHC	Procedures	373-1102
Hoffman, James C. (SME)	LMHC	Sr. Shift Technical Advisor	373-5482
Boliou, Louis C.	LMSI	Records Information Mgmt	376-4821
Gadd, Rodney R.	NHC	Strategic Planning	376-2763
Bombino, Joseph W.	PTH	Physical Security	376-5103

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Appendix A. Base Program Operational Emergency Criteria

HEALTH AND SAFETY	
1.	Discovery of radioactive or other hazardous material contamination from past DOE operations that is causing or may reasonably be expected to cause uncontrolled personnel exposures exceeding protective action criteria.
2.	An offsite hazardous material event not associated with DOE operations that is observed to have or is predicted to have an impact on a DOE site such that protective actions are required for onsite DOE workers.
3.	An occurrence that causes or can reasonably be expected to cause significant structural damage to DOE facilities, with confirmed or suspected personnel injury or death or substantial degradation of health and safety.
4.	<p>Any facility evacuation in response to an actual occurrence that requires time-urgent response by specialist personnel, such as hazardous material responders or mutual aid groups not normally assigned to the affected facility.</p> <p>NOTE: Routine Hanford responders (i.e., Hanford Fire Department, Benton County Sheriff) are considered assigned to PHMC facilities for purposes of this criteria. The event must clearly exceed related Unusual Occurrence criteria (Appendix C) to be reportable under this criteria.</p>
5.	<p>An unplanned nuclear criticality resulting in actual or potential facility damage.</p> <p>NOTE: This criteria is an Emergency Action Level for nuclear facilities. Review DOE-0223.</p>
6.	Any non-transportation-related mass casualty event.
ENVIRONMENT	
1.	Any actual or potential release of hazardous material or regulated pollutant to the environment, in a quantity greater than five times the reportable quantity (RQ) specified for such material in 40 CFR 302, that could result in significant offsite consequences such as major wildlife kills, wetland degradation, aquifer contamination, or the need to secure downstream water supply intakes.
2.	<p>Any release of greater than 1,000 gallons (24 barrels) of oil to inland waters; greater than 10,000 gallons (238 barrels) of oil to coastal waters; or a quantity of oil that could result in significant offsite consequences (e.g., need to relocate people, major wildlife kills, wetland degradation, aquifer contamination, need to secure downstream water supply intakes, etc.) [Oil means any kind of oil, including petroleum, per 33 U.S.C. 1321].</p> <p>NOTE: This is not an identified Hanford hazard.</p>

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SECURITY AND SAFEGUARDS

1. Actual unplanned detonation of an explosive device or a credible threatened detonation resulting from the location of a confirmed or suspicious explosive device.
2. An actual terrorist attack or sabotage event involving a DOE site/facility or operation.
3. Kidnapping or the taking of hostage(s) involving a DOE site/facility or operation.
4. Actual theft or loss of a Category I or II quantity of Special Nuclear Materials or other hazardous material that, if released, could endanger workers, the public, or the environment.
5. Damage or destruction of a site or facility by natural or malevolent means sufficient to expose classified information to unauthorized disclosure.

OFFSITE DOE TRANSPORTATION ACTIVITIES

1. The radiation dose from any release of radioactive material or the concentration in air from any release of other hazardous material is expected to require establishment of an initial protective action zone. ("Initial protective action zone" is defined in DOT RSPA 1996 North American Emergency Response Guidebook [NAERG96] as amended or updated.)
2. Failures in safety systems threaten the integrity of a nuclear weapon, component, or test device.
NOTE: This is not an identified Hanford hazard.
3. Damage to a nuclear explosive, nuclear explosive-like assembly, or Category I/II quantity of Special Nuclear Materials as a result of a transportation accident.

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Appendix B. Abnormal Event Category List

FACILITY CONDITION
1. Any fire onsite requiring suppression by fire department personnel.
2. Any explosion onsite.
3. Any radioactive contamination offsite expected to have originated from Hanford.
4. Any event or condition disrupting facility operations (excluding false indicators) or causing degradation of Safety Class systems.
5. Any unplanned facility evacuation, excluding those caused by false indicators.

ENVIRONMENTAL
1. Any unplanned release of a radiological or hazardous substance above established limits defined in applicable regulations, and requiring verbal notification to a regulator.
2. Any event or condition affecting ecological resources or agreement/compliance areas reportable to a regulator.

PERSONNEL SAFETY
1. Any occupational (work related) illness or injury resulting in medical transport to a local hospital.
2. Any vehicular or aircraft incident onsite resulting in a fatality, or an injury resulting in medical transport to a local hospital.
3. Any unplanned exposure to a radiological or hazardous material resulting in medical transport to a local hospital.

SAFEGUARDS AND SECURITY
1. Any criminal, malevolent, or significant disruptive activities causing injury or property damage, or that disrupts normal site activities.

CROSS-CATEGORY ITEMS
1. Any activation of an Incident Command System in response to an actual event (excluding false indicators or personal illnesses).
2. Any event which results or may result in media attention or public concern.

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Appendix C. Occurrence Reporting Categories and Criteria

GROUP 1 - FACILITY CONDITION		UO	ON
NOTE: For items marked "USQ," immediately notify Engineering to initiate a safety review for a potential Unreviewed Safety Question. (USQ)			
A. Nuclear Criticality Safety			
UO(1)	Violation of the double contingency criticality specifications such that no valid controls are available to prevent a criticality accident. (USQ)	X	
ON(1)	Any nuclear criticality safety violation or infraction of procedures not covered by other reporting criteria. For example, violation of a single contingency such that only one valid criticality control remains in place. (USQ)		X
B. Fires/Explosions			
UO(1)	Any fire or explosion within primary confinement/containment boundaries of a nuclear facility.	X	
ON(1)	Any fire or explosion not required to be reported as an Unusual Occurrence that activates a fire suppression system (e.g., Halon [®] discharge, sprinkler heads activating) or disrupts normal facility operations.		X
ON(2)	An unplanned fire that takes longer than 10 minutes to extinguish following the arrival of fire protection personnel; this does not include fires that do not disrupt normal facility operations and which are in the initial or beginning stage that can be controlled or extinguished by portable fire extinguishers, Class II standpipe, or small hose systems without the need for protective clothing or breathing apparatus.		X
C. Safety Status Degradation			
UO(1)	Any violation or noncompliance of an approved Technical Safety Requirement (Technical Specification or Operational Safety Requirement) or other operational safety limit defined by the contractor/DOE. (USQ)	X	
UO(2)	Discovery of an incorrectly derived Technical Safety Requirement (Technical Specification or Operational Safety Requirement) or other operational safety limit defined by the contractor/DOE. (USQ)	X	
UO(3)	Any operation outside the authorization basis of the facility or process. (USQ)	X	
UO(4)	Any occurrence that would prevent immediate facility or offsite emergency response capabilities.	X	
UO(5)	Discovery of an actual USQ which reveals a currently existing inadequacy in the approved authorization basis.	X	

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GROUP 1 - FACILITY CONDITION		UO	ON
ON(1)	Discovery of a condition that leads the facility operating personnel to limit facility operations, either self-imposed or due to the identification of a potential degradation of the authorization bases of a facility or process. This includes the discovery of analytical errors, omissions, or inadequacies that present the potential for a USQ.		X
ON(2)	Discovery of a potential USQ that could affect the present or future operation of the facility. Routine USQ determinations due to planned system or operational modifications are not reportable under this criteria.		X
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination			
UO(1)	Identification of radioactive contamination offsite in excess of 100 times any of the surface contamination levels specified in DOE 5400.5, <i>Radiation Protection of the Public and the Environment</i> , Figure IV-1, (Appendix D of this procedure) that has not been previously identified and formally documented.	X	
UO(2)	Loss of accountability of a sealed source or identification of lost radioactive material that exceeds 100 times the quantities specified in DOE N 441.1, <i>Radiological Protection for DOE Activities</i> , or State standards/regulations.	X	
UO(3)	Any fissile material in a process or nonprocess system outside primary confinement boundaries not designed or expected to accommodate such material. (USQ)	X	
ON(1)	Any unplanned spill of liquids in excess of one gallon contaminated with radioactive material in concentrations greater than five times the Derived Concentration Guide values listed in DOE 5400.5, Figure III-1.		X
ON(2)	Identification of radioactive contamination outside a radiological area (as defined in 10 CFR 835, <i>Occupational Radiation Protection</i>) or radiological buffer area established for contamination control, but within a Controlled Area, in excess of 10 times the total contamination levels in Table 2-2 of the <i>Hanford Site Radiological Control Manual</i> .		X
ON(3)	Identification of radioactive contamination onsite that is not located within a Controlled Area, Fixed Contamination Area, or Soil Contamination Area, and is in excess of two (2) times the total contamination levels in Table 2-2 of the <i>Hanford Site Radiological Control Manual</i> .		X
ON(4)	Identification of radioactive contamination offsite in excess of any of the surface contamination levels specified in DOE 5400.5, Figure IV-1, (Appendix D of this procedure) that has not been previously identified and formally documented.		X

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GROUP 1 - FACILITY CONDITION		UO	ON
ON(5)	Loss of accountability of a sealed source or identification of lost radioactive material that exceeds ten times and is less than 100 times the quantities specified in DOE N 441.1, <i>Radiological Protection for DOE Activities</i> , or State standards/regulations.		X
ON(6)	Loss of accountability of a sealed source or identification of lost radioactive material that is one to ten times the quantities specified in DOE N 441.1, <i>Radiological Protection for DOE Activities</i> , or State standards/regulations.		X
E. Safety Structure/System/Component Degradation			
UO(1)	Performance degradation of any Safety Class Structure, System, or Component (SSC) that prevents satisfactory performance of its design function when it is required to be operable or in operation.	X	
ON(1)	Performance degradation of any Safety Class SSC that prevents satisfactory performance of its design function when it is not required to be operable or in operation.		X
ON(2)	Performance degradation of any nuclear or nonnuclear Safety Significant SSC that prevents satisfactory performance of its design function when it is required to be operable or in operation.		X
F. Violation/Inadequate Procedures			
UO(1)	Maintenance performed on Safety Class SSC without meeting the required plant conditions for nonavailability resulting in a performance degradation.	X	
UO(2)	Incorrect maintenance (including calibration) on or unauthorized modifications to Safety Class SSC that was required to be operable or in operation and results in a performance degradation. (USQ)		
NOTE:	Not intended to include <i>missed</i> calibration. This criteria is intended to focus on maintenance that was performed outside the bounds of the work package or the use of unapproved materials or methods.	X	
ON(1)	Any violation resulting in actual equipment damage in excess of \$10,000.		X

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GROUP 1 - FACILITY CONDITION		UO	ON
ON(2)	Use of inadequate procedures or deviations from written procedures that result in adverse effects on performance, safety, or reliability.		
NOTE:	<p>The types of events/conditions reportable under this criteria may include (but are not limited to) the following:</p> <ul style="list-style-type: none"> • Lock and tag violations • Radiological posting violations (willful) • Radiation work permit violations • Authorization basis requirements not covered under other criteria (e.g., Limiting Condition for Operations requirements) • Other reportable events describing a procedural violation 		X
ON(3)	Incorrect maintenance (including calibration) on or unauthorized modifications to Safety Significant SSC required to be operable or in operation. (USQ)		
NOTE:	Not intended to include <i>missed</i> calibration.		X
G. Oversight Activities			
UO(1)	Any internal/external oversight activity discovering unsatisfactory operation, testing, maintenance, or modification of any Safety Class SSC that is required to be operable or in operation.	X	
ON(1)	Any internal/external oversight activity discovering unsatisfactory operation, testing, maintenance, or modification of any Safety Significant SSC required to be operable or in operation.		X
H. Operations (This section should be augmented to include specific events that interfere with the safe, efficient, and productive operation of the facility, system, or process as approved by DOE. Each facility should conduct a comprehensive assessment to identify its unique potential events.)			
UO(1)	Actuation of Safety Class SSC or their alarms resulting from an actual unsafe condition. Inadvertent alarms are not required to be reported unless an actuation of a Safety Class SSC occurs and the actuation is considered significant as defined by the approved facility procedures. Actuation of continuous air monitoring systems identified as Safety Class equipment do not have to be reported if their actuation was found to be as a result of radon-thoron effects on the system, or their actuation is expected due to maintenance tasks and other planned operations in the facility where the potential for release of radioactivity is anticipated to occur and the workers are appropriately protected.	X	

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GROUP 1 - FACILITY CONDITION		UO	ON
UO(2)	Loss of incoming alternating current (AC) power and failure of any backup emergency power system to operate, when the backup emergency power system supplies power to a Safety Class SSC.	X	
UO(3)	Weather conditions/natural phenomenon causing serious disruption of facility activities.		
NOTE:	This is not intended to include site closures (delays/early releases) unless the weather condition causes significant impact to facility operations.	X	
UO(4)	Loss of process ventilation system serving a confinement function, which results in the loss of confinement.	X	
UO(5)	Any facility evacuation (excluding office space) in response to an actual occurrence, not including a precautionary evacuation for an event that can be controlled and mitigated by employees or maintenance personnel assigned to the affected facility or activity.	X	
ON(1)	Any unplanned and unexpected change in a process condition or variable adversely affecting safety, security, environment, or health protection performance sufficient to require termination of a procedure in a reactor or nonreactor facility.		X
ON(2)	Any unplanned electrical outages or unexpected consequences from a planned outage which seriously disrupt normal operations of a facility and/or may prevent the facility from meeting approved operating goals.		
NOTE:	Excludes minor electrical interruptions to office areas and buildings.		X
ON(3)	Any unplanned outages of service systems (i.e., cooling water, steam, phones, communication systems, etc.) or unexpected consequences from a planned outage that: <ul style="list-style-type: none"> • disrupt normal operations for one week or longer and • that adversely affect safety, security, environment or health protection performance. 		
NOTE:	Does <i>not</i> include minor electrical interruptions to office areas and buildings.		X
ON(4)	Loss of any process ventilation system serving a confinement function which does not result in the loss of confinement.		X

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GROUP 1 - FACILITY CONDITION		UO	ON
ON(5)	Actuation of Safety Significant SSC or their alarms resulting from an actual unsafe condition. Inadvertent alarms are not required to be reported. Actuation of continuous air monitoring systems identified as Safety Significant equipment do not have to be reported if their actuation was found to be due to radon-thoron effects on the system, or their actuation is expected due to maintenance tasks and other planned operations in the facility where the potential for release of radioactivity is anticipated to occur and the workers are appropriately protected.		X

GROUP 2 - ENVIRONMENTAL		UO	ON
A. Radionuclide Releases			
UO(1)	Release of a radioactive material that violates environmental requirements in Federal permits, Federal regulations, or requirements established under DOE directives.	X	
UO(2)	Any release that is not an Emergency as defined in DOE-O223, <i>Emergency Plan Implementing Procedures</i> , but which requires immediate reporting (less than 4 hours) to Federal regulatory authorities. Release of a radioactive material that exceeds a federally permitted release by the amount of a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) reportable quantity (RQ) or, where no federally permitted release exists, the release exceeds the reportable quantity or triggers specific action levels for an outside Federal agency.	X	
ON(1)	Any release of radioactive material to controlled or uncontrolled areas that is not part of a normal monitored release and which exceeds 50 percent of a CERCLA RQ specified for such material per 40 CFR 302.		X
ON(2)	Any controlled release of radioactive material that occurs as a monitored part of normal operations that exceeds what historical data and/or analysis show is expected as a result of normal operations.		X
ON(3)	Any monitored facility or site boundary where exposure or concentration exceed what historical data and/or analysis show is expected as a result of normal operations.		X
ON(4)	Any detection of a radionuclide in a sanitary or storm sewer, waste or process stream, or any holding points where such a material is not expected.		X
ON(5)	Any controlled, uncontrolled, or accidental release not classified as an Unusual Occurrence but will be reported in writing to State/local agencies in a format other than routine periodic reports.		X

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GROUP 2 - ENVIRONMENTAL		UO	ON
NOTE: Does not include routine offsite distribution of Notification Reports.			
B. Release of Hazardous Substances/Regulated Pollutants/Oil			
UO(1)	Release of a hazardous substance or regulated pollutant that exceeds a CERCLA RQ per 40 CFR 302 and 40 CFR 355 for chemicals and extremely hazardous substances.	X	
UO(2)	Any release that is not an Emergency as defined by DOE-0223, <i>Emergency Plan Implementing Procedures</i> , but which requires immediate (less than four hours) reporting to Federal regulatory agencies or triggers specific action levels for an outside Federal agency.	X	
UO(3)	Any discharge of 378.5 liters (100 gal.) or more of oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.	X	
ON(1)	Release of a hazardous substance or regulated pollutant to controlled or uncontrolled areas that is not part of a normal, monitored release and which exceeds 50 percent of a CERCLA RQ as specified for such material per 40 CFR 302.		X
ON(2)	Any discharge of greater than 159 liters (42 gal.) of oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil outside of a permitted containment area.		X
ON(3)	Any detection of a toxic or hazardous substance in a sanitary or storm sewer, waste or process stream, or any holding points where such a material is not expected to be found considering the current detection method and historical detection method used.		X
ON(4)	Any controlled, uncontrolled or accidental release not classified as an Unusual Occurrence but which will be reported in writing to State/local agencies in a format other than routine periodic reports.		
NOTE:	This does not include routine offsite distribution of Notification Reports.		X
ON(5)	Any controlled release of hazardous/regulated material that occurs as a monitored part of normal operation but exceeds what historical data and/or analysis shows is expected as a result of normal operations.		X
ON(6)	Any general environmental monitoring where concentration increases to a level which exceeds what historical data and/or analysis shows is expected as a result of normal operations.		X
C. Hazardous Material Contamination			
UO(1)	Discovery of onsite or offsite contamination due to DOE operations that does not represent an immediate threat to the public but exceeds a	X	

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GROUP 2 - ENVIRONMENTAL		UO	ON
	reportable quantity for such material per 40 CFR 302.		
UO(2)	Any discovery of groundwater contamination as a result of DOE operations that is not part of an existing plume previously identified in either an annual report or in any CERCLA/RCRA activity or report.	X	
ON(1)	Discovery of onsite contamination due to DOE operations that exceeds 50 percent of a reportable quantity for such material per 40 CFR 302.		X
D. Ecological Resources			
UO(1)	Any occurrence causing significant impact to any ecological resource for which the DOE is a trustee (i.e., destruction of a critical habitat, damage to a historic/archeological site, damage to wetlands, etc.).	X	
E. Environmental Agreement/Compliance Activities (Upon receipt of an environmental enforcement action/notice directly from the regulatory agency or RL/ORP, refer to Occurrence Reporting Information/Report Writer's Guide in Hanford Information for specific guidance in completing the occurrence report.)			
UO(1)	Any occurrence under any agreement or compliance area that requires notification of an outside regulatory agency within four hours or less, or triggers any outside regulatory agency action level.	X	
ON(1)	Any agreement, compliance, remediation or permit-mandated activity for which formal notification of enforcement has been received from the relevant outside regulatory agency that a site/facility is considered to be in noncompliance with a schedule or requirement (e.g., Notice of Violation, Notice of Deficiency, Notice of Intent to Sue, Notice of Noncompliance, Warning Letter, Finding of Violation, Finding of Alleged Violation, or a similar type enforcement action).		
NOTE:	Formal notification must be received by FDH or a subcontractor in writing.		X
ON(2)	Any occurrence under any agreement or compliance area that will be reported to outside agencies in a format other than routine periodic reports.		
NOTE 1:	Does not include routine offsite distribution of Notification Reports.		
NOTE 2:	Oral notifications in a regulatory agreement (i.e., Air Operating Permits) are considered "routine" reporting, although the event being reported may require categorization under other criteria in this procedure. Occurrences requiring a follow-up written report to a regulator shall be reported under this criteria, at a minimum. Refer to HNF-PRO-450, <i>Environmental Compliance</i> , for further information.		X

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GROUP 3 - PERSONNEL SAFETY		UO	ON
A. Occupational Illness/Injuries			
UO(1)	Any occurrence due to DOE operations resulting in a fatality or terminal injury or illness.	X	
UO(2)	Any one occurrence resulting in 3 or more lost workday cases as defined by 29 CFR 1904.12 and Office of Management and Budget (OMB) No. 1200-0029.	X	
UO(3)	Any occurrence requiring in-patient hospitalization of three or more personnel or that has a high probability of resulting in a permanent disability.	X	
UO(4)	<p>Personnel exposures to sufficient levels of hazardous substances or hazards that require the administration of medical treatment on the same day as the exposure and are above limits established by the Occupational Safety and Health Administration (refer to 29 CFR 1910 or American Conference of Governmental Industrial Hygienists (ACGIH), whichever is lower. These may include (but are not limited to):</p> <ul style="list-style-type: none"> • Noise • Non-ionizing radiation • Chemical Agents • Physical Agents • Biological Agents 	X	
UO(5)	Exposures to an immediately dangerous to life and health (IDLH) (as defined by 29 CFR 1910.120) condition without both appropriate personal protective equipment and procedures in place.	X	
ON(1)	Any occupational illness or injury that results in inpatient hospitalization.		X
ON(2)	Series of occupational illnesses from one event involving three or more people where at least one is a lost work day case.		X
ON(3)	<p>Personnel exposure in a single event to hazardous substances or hazards in excess of limits, as established by the Occupational Safety and Health Administration (refer to 29 CFR 1910), or American Conference of Governmental Industrial Hygienists (ACGIH), whichever is lower. These may include (but are not limited to):</p> <ul style="list-style-type: none"> • Noise • Non-ionizing radiation • Chemical Agents • Physical Agents • Biological Agents 		X

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GROUP 3 - PERSONNEL SAFETY		UO	ON
B. Vehicular Incidents (This section covers vehicular transportation incidents, including DOE or DOE contractor operated aircraft. Group 6 should also be considered in categorization for reporting. Transportation incidents without injury (e.g., those involving hazardous or radioactive material or financial loss) must be reported per the requirements of Group 6 or 7.)			
UO(1)	Any vehicular incident resulting in fatality(s), injury(s), or illness classified under Group 3, Section A, Unusual Occurrence.	X	
UO(2)	Any vehicular incident involving DOE property with a fatality(s) to a person(s) other than DOE personnel or DOE contractor personnel.	X	
ON(1)	Any vehicular incident with injury(s) involving DOE property resulting in a lost workday case.		X
ON(2)	Any vehicular incident involving DOE property with injury(s) to a person(s) other than DOE personnel or DOE contractor personnel.		X
C. Safety Concerns (Special attention should be paid to augmenting this section during the development of facility-specific procedures.)			
ON(1)	Unapproved use of flammable, toxic, explosive, corrosive, or other unsafe or dangerous processes, chemicals, materials, or methods not in accordance with standard operating procedures or work plans.		X
ON(2)	Any shutdown of a work activity taken as a result of an Occupational Safety and Health Administration violation (e.g., trenching without adequate shoring or working at elevated levels without fall protection, when required).		X

GROUP 4 - PERSONNEL RADIOLOGICAL PROTECTION		UO	ON
A. Radiation Exposure (Unless specified otherwise, all doses specified in the following requirements are calculated as the total effective dose equivalent, which is the sum of the committed dose equivalent resulting from radionuclides taken into the body [internal exposure] and the effective dose equivalent due to external exposure.)			
UO(1)	Determination of a dose that exceeds the limits specified in Table 2-1 of the Hanford Site Radiological Control Manual (HSRCM) (for onsite exposure) or DOE 5400.5, Chapter II, Section 1 (for offsite exposures to a member of the public).	X	
ON(1)	Any single occupational exposure that exceeds an expected exposure by 100 mrem.		X
ON(2)	A single unplanned exposure onsite to a minor or member of the public that exceeds 50 mrem.		X
ON(3)	Determination of a dose that exceeds the reporting requirement thresholds specified in DOE 5400.5, Chapter II, Section 7, for offsite exposures to a member of the public.		X
B. Personnel Contamination			

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GROUP 4 - PERSONNEL RADIOLOGICAL PROTECTION		UO	ON
UO(1)	Any single occurrence resulting in the contamination of five or more personnel or clothing (excluding protective clothing) measured (prior to washing or decontamination) in accordance with HSRCM-1, Article 338, or equivalent, at a level exceeding the values for total contamination limits identified in HSRCM-1, Table 2-2. The contamination level shall be based on direct measurement and not averaged over any area.		
NOTE:	Personnel contamination occurrences must be reported in 100 cm ² units.	X	
UO(2)	Any occurrence requiring off-site medical assistance for contaminated personnel.	X	
UO(3)	Identification of personnel or clothing contamination offsite due to DOE operations in accordance with approved radiological procedures for determining personnel and/or clothing contamination, measured (prior to washing or decontamination) in accordance with HSRCM-1, Article 338, or equivalent.		
NOTE:	Does not include laundry known to be contaminated that is sent offsite for cleaning.	X	
ON(1)	Any measurement of personnel or clothing contamination (excluding protective clothing) at a level greater than or equal to five (5) times HSRCM-1, Table 2-2 total contamination limits, measured according to HSRCM-1, Article 338 (prior to washing or decontamination). The contamination level shall be based upon direct measurement and not averaged over any area.		
NOTE:	Does not include laundry known to be contaminated that is sent offsite for cleaning.		X
ON(2)	Any measurement of personnel or clothing contamination (excluding protective clothing) at a level equal to but less than five (5) times HSRCM-1, Table 2-2 total contamination limits, measured in accordance with HSRCM-1, Article 338 (prior to washing or decontamination). The contamination level shall be based upon direct measurement and not averaged over any area.		X

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GROUP 5 - SAFEGUARDS AND SECURITY		UO	ON
NOTE: Occurrences in this group will require careful review for classified and Unclassified Controlled Nuclear Information, in addition to careful review for privacy considerations. Classified information will be transmitted only through approved communications channels and should be held to the absolute minimum. The lack of detail that may be required in such reports is recognized by DOE management. For the purpose of this group of reportable occurrences, the term "onsite" applies to all facilities, installations, and real property subject to the jurisdiction or administration of the DOE or in its custody and posted with notices of prohibitions and penalties.			
A. Criminal Acts (Initial notification of events in this section shall follow normal occurrence reporting timelines. When reporting an occurrence that is the subject of an ongoing investigation under this subgroup, the report shall be tailored to prevent jeopardizing the investigation. Full reporting may be delayed until completion of criminal investigations, if the reports would jeopardize the investigation.)			
UO(1)	At DOE reactor or nonreactor nuclear facilities: <ul style="list-style-type: none"> Bomb-related incidents, including location of a suspicious device or a noncredible bomb threat; A noncredible terrorist threat; or A noncredible sabotage threat or breach/attempted breach of a secure/classified facility. 	X	
UO(2)	Violent assault/battery, murder, or unjustified use of deadly force while on DOE property.	X	
UO(3)	Theft/diversion/intentional destruction of government property valued greater than \$1,000,000.	X	
UO(4)	Racketeering or other organized criminal activity onsite.	X	
ON(1)	At DOE facilities other than reactors and nonreactor nuclear facilities: <ul style="list-style-type: none"> Location of a suspicious device or noncredible bomb threat; Noncredible terrorist threat; or Noncredible sabotage threat. 		X
ON(2)	Theft/diversion/intentional destruction of government property valued between \$10,000 and \$1,000,000.		X
ON(3)	Onsite felony conspiracies (i.e., blackmail, fraud, embezzlement, extortion and forgery) not involving classified information.		X
B. Unaccounted for Classified Matter or Compromised Information			

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GROUP 5 - SAFEGUARDS AND SECURITY		UO	ON
UO(1)	The loss, potential compromise, or unauthorized disclosure (determined in accordance with HNF-PRO-405, <i>Protecting and Controlling Classified Matter</i>), in any manner, of information classified as, or which should have properly been classified as, Top Secret (all categories) and Secret (all categories), and/or all documents regardless of classification level and category containing Sensitive Compartmented Information, Special Access Program information, and/or classified information of another government agency or foreign government.	X	
ON(1)	The loss, potential compromise, or unauthorized disclosure (determined in accordance with HNF-PRO-405), in any manner, of information classified as, or which should have properly been classified as, Confidential (all categories), but not including Confidential documents containing Sensitive Compartmented Information, Special Access Program information, and/or classified information of another government agency or foreign government.		X
C. Substance Abuse (Discovery of the prohibited use, possession or involvement of alcohol or illegal drugs by personnel within a facility that may affect facility operations)			
ON(1)	Any reportable occurrence under this procedure at least partially attributable to the use of alcohol or illegal drugs.		X
ON(2)	A detection of personnel not fit for duty attributable to the use of alcohol or illegal drugs.		X
D. Intelligence Activities			
UO(1)	Extortion/blackmail directed at DOE or DOE contractor personnel with intent of obtaining classified information/systems, detailed information concerning plant processes/configurations, or aiding in sabotage or terrorist acts.	X	
UO(2)	Espionage, intelligence activities, treason, or subversive activities by or directed at DOE or DOE contractor personnel.	X	
ON(1)	When illegal or unauthorized access is sought to classified or sensitive information, technology, or special nuclear materials (SNM).		X
ON(2)	When DOE or DOE contractor personnel believe that they may be the target of an attempted exploitation by an inimical interest, foreign or domestic.		X
E. Physical Security System Computer			
UO(1)	Actual/attempted unauthorized access to classified or sensitive unclassified information.	X	

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GROUP 5 - SAFEGUARDS AND SECURITY		UO	ON
UO(2)	Discovery of a computer incident (virus, hacker, sniffer, abuse, fraud, etc.) involving a physical security system that causes an alteration to a security feature, disruption of service, or loss of the confidentiality, integrity or availability of information, and results in an estimated \$1,000,000 or more in damages or the cost of restoring services.	X	
ON(1)	Discovery of a computer incident (virus, hacker, sniffer, abuse, fraud, etc.) involving a physical security system that causes an alteration to a security feature, disruption of service, or loss of the confidentiality, integrity or availability of information, and results in an estimated \$10,000 or more in damages or the cost of restoring services.		X
F. Unplanned/Unscheduled Outage of Site Security System			
UO(1)	Unplanned/unscheduled outage of any site security system, or major component of a site security system, that is not redundant and/or results in a potential vulnerability which would allow unauthorized or undetected access to Protected Areas, Exclusion Areas, Material Access Areas, and Sensitive Compartmented Information Facilities.	X	
ON(1)	Unplanned/unscheduled outage of any site security system, or major component of a site security system, not encompassed by the Unusual Occurrence category, that is not redundant and not authorized by a facility shutdown plan or a special security plan approved by DOE, that requires the physical presence of the protective force as a compensatory measure to prevent unauthorized access. This does not include the stationing of protective forces as a backup security system identified in a DOE approved facility security plan.		X
G. Demonstrations/Protests			
UO(1)	Disruptive activities impeding vehicular or employees access/egress.	X	
UO(2)	Attempted or actual trespass.	X	
UO(3)	Malevolent activities causing property damage or bodily harm.	X	
ON(1)	Lawful activities warranting deployment of additional protective measures.		X
H. Firearms			
UO(1)	Unauthorized firearms discharge resulting in personnel injury.	X	
ON(1)	Unauthorized firearms discharge resulting in no personnel injury.		X
ON(2)	Loss or theft of DOE firearms or munitions, as per DOE 5632.7A, <i>Protective Force Programs</i> . Facility-specific procedures shall include current amounts identified in DOE-5632.7A.		X
I. Other Security Concerns			

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GROUP 5 - SAFEGUARDS AND SECURITY		UO	ON
UO(1)	Unauthorized use, possession, or alteration of a security badge, credential, shield, or other form of official identification (to include blank badge stock/form) to gain access to a Protected Area or Limited Area.	X	
ON(1)	Discovery of prohibited items within a Protected Area that: <ul style="list-style-type: none"> Are suspected of being positioned for the purpose of aiding and abetting a malevolent act; or Are, of themselves, illegal. <p>NOTE: Items discovered outside controlled areas that are legal under Federal, State, and local laws are not reportable, even if the discovery of such items would otherwise be reportable under this paragraph.</p>		X
ON(2)	Onsite death of cleared DOE or DOE contractor personnel by unnatural causes (e.g., suicide, drug overdose).		X
ON(3)	Loss of security badges in excess of 5 percent in a calendar year.		X
ON(4)	Onsite malicious mischief, disorderly conduct, or vandalism that disrupts plant activity or causes damage between \$10,000 and \$100,000.		X
J. Material Control and Accountability			
UO(1)	Loss or apparent loss of the following (including item losses due to shipper-receiver differences): <ul style="list-style-type: none"> One or more items for which the items total a Category I, II, or III quantity of Special Nuclear Materials, or One or more items of tritium in a weapons or test component, or One or more items which total 50 grams or more of tritium. 	X	
UO(2)	An inventory difference (loss or gain) that exceeds alarm limits, does not involve the loss of an item, and is a Category I or II quantity of Special Nuclear Materials.	X	
UO(3)	A shipper-receiver difference involving a gain in the number of items for which the items total to a Category I or II quantity of Special Nuclear Materials.	X	
UO(4)	Evidence that Special Nuclear Material balance or tritium material balance data has been manipulated or falsified to mask a diversion or theft or to alter loss detection sensitivity.	X	

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GROUP 5 - SAFEGUARDS AND SECURITY		UO	ON
UO(5)	Alarms or other indicators, excluding inventory differences or shipper-receiver differences, from loss detection elements for Category I and II material balance areas that cannot be proven to be false within 24 hours.	X	
UO(6)	Loss or apparent loss whenever a State, local government or other Federal agency must be notified.	X	
ON(1)	Alarms or other indicators, excluding inventory differences or shipper-receiver differences, from loss detection elements for Category III and IV material balance areas that cannot be proven to be false within 24 hours.		X
ON(2)	A Special Nuclear Materials or tritium inventory difference (loss or gain) that exceeds the alarm limits, does not involve the loss of an item, and is a Category III or IV quantity of material.		X
ON(3)	A shipper-receiver difference that exceeds 200 grams of fissile material and the combined limit of error for the shipment.		X
ON(4)	A Special Nuclear Materials or tritium shipper-receiver difference involving a gain in the number of items for which the items total a Category III or IV quantity of material.		X
ON(5)	Any unexpected accumulation of fissile material within primary confinement boundaries. (USQ)		X
ON(6)	A statistically significant trend in total inventory difference for Special Nuclear Materials or tritium inventories.		X
ON(7)	Loss or apparent loss of one or more items for which the items total a Category IV quantity of Special Nuclear Materials or any loss of one or more containers of tritium that does not meet the threshold for an Unusual Occurrence (includes item losses due to shipper-receiver differences).		X

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GROUP 6 - TRANSPORTATION		UO	ON
<p>Transportation occurrences are incidents related to the transportation of DOE materials, including hazardous materials, hazardous substances and hazardous wastes by vehicle, vessel, air, or rail mode. The requirements for reporting noncompliances and violations associated with such transfers are qualified in this procedure. The Federal regulations for offsite transportation are found in 10 CFR Part 71, 49 CFR Parts 106-180, 200-250, and 350-399, 46 CFR (vessel), ICAO/IATA, IMDG, 14 CFR (aviation), and several DOE Orders. For onsite (within controlled boundaries of DOE facilities), the transportation regulations for hazardous materials transfers are the same as offsite (DOT's Hazardous Materials Regulations) or as defined in an approved facility transportation safety document. FDH or subcontractor facilities receiving materials from a DOE shipper that are not in compliance with appropriate regulations, as qualified by this procedure, must report the discrepancies to the DOE shipper who will prepare an occurrence report and implement suitable corrective actions. If such a shipment is received from a non-DOE shipper and meets the reporting criteria of this procedure, the FDH or subcontractor organization will notify the non-DOE shipper of the apparent noncompliance and will prepare an occurrence report stating that the non-DOE shipper has been notified. These reporting criteria are in addition to any required by DOT for facilities subject to the DOT regulations.</p>			
A. Transportation of DOE Hazardous Materials			
UO(1)	Any packaging or transportation activity (including loading, unloading, or temporary storage) involving the offsite release of radioactive material, etiologic agents, a reportable quantity of hazardous substance, or marine pollutants.	X	
UO(2)	Any shipment of radioactive material that arrives at its destination with radiation or contamination levels greater than DOT limits, or results in personnel radiation exposure higher than permitted in Federal permits, Federal regulations, or DOE standards.	X	
UO(3)	Any shipment or onsite transfer of radioactive material or hazardous waste that arrives at its destination with an unaccounted for package or an irreconcilable shipping paper, waste manifest, or onsite transfer authorization.	X	

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GROUP 6 - TRANSPORTATION		UO	ON
UO(4)	<p>A vehicle, vessel, rail or air incident or accident (without personal injury) that presents significant impact on the ability of a facility to conduct transportation operations and:</p> <ul style="list-style-type: none"> • Results in release of radioactive or hazardous materials above Federal permit, Federal regulatory, or DOE Standard limits; • Involves performance degradation of safety equipment; or • Is the result of failure or degradation of administrative controls required to ensure safety. 	X	
UO(5)	Violations of the Federal Motor Carrier Safety Regulations or the Hazardous Materials Regulations if those violations are determined by DOT inspection and result in a fine (monetary penalty).	X	
ON(1)	<p>Any packaging or transportation activity involving:</p> <ul style="list-style-type: none"> • The offsite release of non-radioactive hazardous material, or any quantity of hazardous waste; or • The onsite release of radioactive materials, etiologic agents, hazardous substances, hazardous waste, or marine pollutants. 		X
ON(2)	<p>A vehicle, vessel, rail or air incident or accident (without personal injury) that affects the ability of a facility to conduct transportation operations and:</p> <ul style="list-style-type: none"> • Results in release of radioactive or hazardous materials below limits established by Federal permits, Federal regulations, or DOE Standard limits but must be reported to State or local agencies; or • Is the result of operational procedural violations, including maintenance or administrative procedures. 		X

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GROUP 6 - TRANSPORTATION		UO	ON
ON(3)	<p>Noncompliances (potential violations) of the DOT Hazardous Materials Regulations or the transportation and packaging requirements of the Nuclear Regulatory Commission involving:</p> <ul style="list-style-type: none">• Errors made by the shipper in materials description, marking, labeling, or placarding;• An unqualified person signing shipping papers;• The highway routing selection requirements for highway route controlled shipments or the notification requirements for spent-fuel shipments not being observed;• The separation and segregation tables for hazardous materials not strictly adhered to; or• The applicable packaging requirements for the assembly, handling, or selection of a package not being in accordance with the applicable regulations.		X

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GROUP 6 - TRANSPORTATION		UO	ON
ON(4)	<p>Noncompliances (potential violations) of the Federal Motor Carrier Safety Regulations involving:</p> <ul style="list-style-type: none"> • A contractor driver operating a DOE-owned motor vehicle after a positive drug test or failure of an alcohol test; • An unqualified driver operating a vehicle (medical, driver's license, or training not in compliance); • The carrier (contractor management) not having required insurance; • A vehicle that failed inspection not being removed from service; • A specification cargo tank with expired inspection being in service with hazardous materials; • A driver's log book deliberately misrepresented; or • The carrier (contractor management) failing to perform random or periodic drug or substance-abuse testing. 		X
ON(5)	Any violation of the Hazardous Material Regulations or Federal Motor Carrier Safety Regulations if that violation is determined by DOT inspection and does not result in a penalty.		X

GROUP 7 - VALUE BASIS REPORTING		UO	ON
A. Cost Based Occurrences (Any occurrence specifying cost as a basis for reporting, unless otherwise stated, will be classified by the following monetary values necessary to repair, replace, or otherwise restore a facility/system/component to acceptable operation. Costs used for reporting should be reasonable initial estimates.)			
UO(1)	Estimated loss or damage to DOE or other property amounting to \$1,000,000 or more, or estimated costs of \$1,000,000 or more required for cleaning (including decontamination), renovating, replacing, or rehabilitating structures, equipment, or property.	X	
ON(1)	Estimated loss or damage to DOE or other property amounting to between \$10,000 and \$1,000,000 (for vehicle/aircraft the lower limit is \$5,000 or, for insurance purposes, considered a total loss) or estimated costs within these limits required for cleaning (including decontamination), renovating, replacing, or rehabilitating structures,		X

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GROUP 7 - VALUE BASIS REPORTING		UO	ON
equipment, or property.			
NOTE: Value basis reporting includes items based on cost or the identification of defective items, materials, or services. A defective item, material, or service shall be identified and reported to allow the initiation of an investigation and make all DOE elements aware of the defect and initiate actions to eliminate common mode failures due to substandard, counterfeit, misrepresentation, or fraudulent practices of suppliers.			
B. Defective Item, Material, or Service			
ON(1)	<p>Discovery of any actual or potential defective item, material, or service, including any suspect, counterfeit, or substandard product, in any application whose failure could result in a substantial safety hazard. Examples include the identification of suspect, counterfeit or substandard products found in:</p> <ul style="list-style-type: none"> • Cranes, elevators, and fork lifts - items used in the critical load bearing path of such handling and lifting equipment; • Aircraft - items used in engines or to attach engines, wings, tails, or landing gear; • Vehicles - items used in engines, brakes or steering mechanisms; • Critical components used in personnel safety equipment; and • Facilities - <ul style="list-style-type: none"> 1. Items used to contain: <ul style="list-style-type: none"> • Radioactive fluids • High temperature or pressure steam or fluids, or • Other hazardous material 2. Safety Class SSC or Safety Significant SSC supporting the safe operation or shutdown of a facility, system, or process that could result in a performance degradation. <p>Guidance in the identification and follow-up actions are contained in DOE Quality Alerts or other bulletins.</p>		
			X

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GROUP 7 - VALUE BASIS REPORTING		UO	ON
ON(2)	Discovery of any actual or potential defective item, material, or service, including any suspect, counterfeit, or substandard product, in any application whose failure could not result in a substantial safety hazard. This does not include office supplies, equipment, or household products.		X

GROUP 8 - FACILITY STATUS		UO	ON
This section involves the change of facility status that may affect the performance goals of a facility. The potential inability to meet performance goals may significantly affect other major and minor facilities throughout the complex. Performance goals are operating objectives necessary to accomplish an approved facility, process, or activity mission on a periodic basis. The duration of the goal may be short or long term, but should not exceed the goals of the annual operating plan.			
A. Facility/Process/Activity Unscheduled Shutdown			
ON(1)	Any unscheduled shutdown of a facility, process, or activity that resulted or may result in the failure to meet approved performance goals.		X
B. Existing Facility/Process/Activity Shutdown Extension			
ON(1)	Any increase in an approved shutdown schedule of one month or greater or that resulted or may result in the failure to meet approved performance goals for an existing facility, process, or activity.		X
C. New Facility/Process/Activity Start-up Delay			
ON(1)	Any delay in an approved start-up schedule of one month or greater and which resulted or may result in the failure to meet approved performance goals for a new facility, process, or activity.		X

GROUP 9 - NUCLEAR EXPLOSIVE SAFETY		UO	ON
This criteria group does not apply to the PHMC, and is not included in this procedure.			

GROUP 10 - CROSS-CATEGORY ITEMS		UO	ON
A. Collectively Significant Related Occurrences			
UO(1)	A series of related occurrences which individually do not warrant reporting under preceding criteria, but which collectively are considered significant enough to warrant reporting as determined by the Facility Manager.	X	

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GROUP 10 - CROSS-CATEGORY ITEMS		UO	ON
ON(1)	A series of related occurrences which individually do not warrant reporting under preceding criteria, but which collectively are considered significant enough to warrant reporting as determined by the Facility Manager.		X
B. Near Miss Occurrences			
UO(1)	A near miss to one of the reporting classifications under preceding categories where the conditions necessary to cause an Unusual Occurrence existed (i.e., all barriers to event initiation were compromised).	X	
ON(1)	A near miss to one of the reporting classifications under preceding categories where the conditions necessary to cause an Off-Normal Occurrence existed (i.e., all barriers to event initiation were compromised).		X
ON(2)	A near miss to one of the reporting classifications under preceding categories where the conditions necessary to cause a reportable occurrence were prevented from existing by one remaining barrier after other barriers had been compromised (i.e., one additional independent failure/degradation was necessary for event initiation to be possible).		X
C. Potential Concerns/Issues			
UO(1)	An occurrence that may result in a significant concern, by the press or general population, particularly in the offsite transportation and radiological areas, or could damage the credibility of the Department of Energy.	X	
UO(2)	Identification of potential concerns or issues that are deemed to be worthy of reporting by the Facility Manager.		
NOTE:	The intent of this section is to report potential concerns or issues not applicable to other criteria.	X	
ON(1)	Any event resulting in the initiation of a Type A or B investigation as categorized by DOE O 225.1, <i>Accident Investigations</i> .		X
ON(2)	Identification of potential concerns or issues that are deemed to be worthy of reporting by the Facility Manager.		
NOTE:	The intent of this section is to report potential concerns or issues not applicable to other criteria.		X

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Appendix D

TABLE 1*

SURFACE ACTIVITY GUIDELINES

Allowable Total Residual Surface Activity (dpm/100 sq-cm)¹

Radionuclides ²	Average ^{3/4}	Maximum ^{4/5}	Removable ⁶
Group 1 - Transuranics, I-125, I-129, Ac-227, Ra-226, Ra-228, Th-228, Th-230, Pa-231	100	300	20
Group 2 - Th-natural, Sr-90, I-126, I-131, I-133, Ra-223, Ra-224, U-232, Th-232	1000	3000	200
Group 3 - U-natural, U-235, U-238, and associated decay products, alpha emitters	5000	15000	1000
Group 4 - Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous ¹⁰ fission) except Sr-90 and others noted above ⁷	5000	15000	1000
Tritium (applicable to surface and subsurface) ⁸	N/A	N/A	1000

- *Excerpt from Response to Questions and Clarification of Requirements and Processes: DOE 5400.5, Section II.5 and Chapter IV Implementation (Requirements Relating to Residual Radioactive Material), DOE Assistant Secretary for Environment, Safety and Health, Office of Environmental Policy and Assistance (EH-41), Nov. 17, 1995.*

NOTES:

¹As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

²Where surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.

³Measurements of average contamination should not be averaged over an area of more than 1 sq-m.. For objects of smaller surface area, the average should be derived for each such object.

⁴The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at 1 cm.

⁵The maximum contamination level applies to an area of not more than 100 sq-cm.

⁶The amount of removable material per 100 sq-cm of surface area should be determined by wiping an area of that size with dry filter or soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wiping with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 sq-cm is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. It is not necessary to use wiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual surface contamination levels are within the limits for removable contamination.

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⁷This category of radionuclides includes mixed fission products, including the Sr-90 which is present in them. It does not apply to Sr-90 which has been separated from the other fission products or mixtures where the Sr-90 has been enriched.

⁸Property recently exposed or decontaminated should have measurements (smears) at regular time intervals to ensure that there is not a build-up of contamination over time. Because tritium typically penetrates material it contacts, the surface guidelines in Group 4 are not applicable to tritium. The Department has reviewed the analysis conducted by the DOE Tritium Surface Contamination Limits Committee ("Recommended Tritium Surface Contamination Release Guides," February 1991), and has assessed potential doses associated with the release of property containing residual tritium. The Department recommends the use of the stated guideline as an interim value for removable tritium. Measurements demonstrating compliance of the removable fraction of tritium on surfaces with this guideline are acceptable to ensure that non-removable fractions and residual tritium in mass will not cause exposures that exceed DOE dose limits and constraints.